



UNITED NATIONS  
*Office on Drugs and Crime*

ROYAUME DU MAROC  
LE PREMIER MINISTRE  
AGENCE POUR LA PROMOTION ET  
LE DEVELOPPEMENT  
ECONOMIQUE ET SOCIAL DES  
PREFECTURES ET PROVINCES DU  
NORD DU ROYAUME



# MOROCCO

## Cannabis Survey 2004

### Executive Summary 2004



May 2005

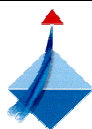
## Abbreviations

APDN	Agence pour la Promotion et le Développement Economique et Social des Préfectures et Provinces du Nord du Royaume
CRTS	Centre Royal de Télédétection spatiale
DPAE	Direction de la Programmation et des Affaires Economiques du Ministère de l'Agriculture, du Développement Rural et des Eaux et Forêts
Dh	Moroccan Dirham
GPS	Global Positioning System
ICMP	Illicit Crop Monitoring Programme
LARATES	Laboratoire de Recherches et d'Analyses Techniques et Scientifiques, Gendarmerie Royale
UNODC	United Nations <i>Office on Drugs and Crime</i>
\$	United States dollars

## Acknowledgments

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### Government of Morocco:



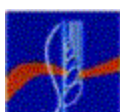
#### **APDN :**

Direction des Affaires Administratives et Financières  
Direction des Opérations  
Département de la Coopération Internationale  
Département des Secteurs Productifs



#### **CRTS**

Centre Royal de Télédétection spatiale



#### **DPAE :**

Division des Statistiques et de l'Informatique



#### **LARATES :**

Département Analyses et Prélèvements, Gendarmerie Royale



#### **Association TARGA**

The implementation of this survey would not have been possible without the support of the local administration of the prefectures and Northern provinces of the Kingdom and the dedicated work of the DPAE field surveyors.

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- Thibault le Pichon, Chief (Research and Analysis Section)
- Thomas Pietschman, Analyst (Research and Analysis Section)

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This report, and other ICMP survey reports can be downloaded from:

[www.unodc.org/unodc/en/crop\\_monitoring.html](http://www.unodc.org/unodc/en/crop_monitoring.html)

# **MOROCCO**

## **Cannabis Survey 2004**

**May 2004**

## PREFACE

The first survey of cannabis cultivation was carried out in 2003, with the productive collaboration of the United Nations Office on Drugs and Crime (UNODC). This excellent cooperative effort was continued in 2004, when field surveys were carried out, making it possible not only to update statistics on the area of land cultivated and on production, and to enhance the database with information on cannabis quality and yields, but in particular to identify the socio-cultural mechanisms that determine the behaviour of cannabis producers. The latter information was the missing part of the puzzle with respect to setting up appropriate programmes of action to identify alternative sources of income.

The results of the sociological study of cannabis cultivation show that special attention should be given to modernizing collective social organization, particularly in the central Rif region, since successful and sustainable alternative development programmes cannot be achieved without the support of modern, organized collective structures.

Support in the form of international cooperation is also vital, given the quantity of financial resources that needs to be mobilized in order to implement the measures identified under the development programme for the central Rif region.

It is precisely for this purpose—mobilizing the necessary funds—that a round table is to be organized jointly by UNODC and the Agence du Nord, bringing together potential international donors.

In conclusion, it should be stressed that the results of the surveys carried out in 2004 question some certitudes and therefore call for further research, particularly in the following areas:

- Calibration of the area of land used for cannabis cultivation;
- Tracing of the origin of seeds;
- Analysis of the THC levels, in which the survey highlighted wide variations;
- The level of involvement of cannabis growers in producing cannabis resin from cannabis plants;
- The sale price of cannabis and cannabis resin.



Driss Benhima  
General Director

Agency for the Promotion and the Economic and Social Development  
of the Northern Prefectures and Provinces of the Kingdom

## PREFACE

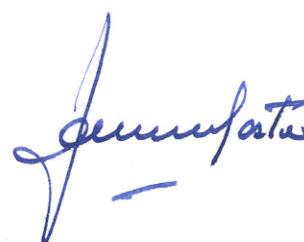
In 2003, the Government of Morocco and the United Nations Office on Drugs and Crime undertook the first survey of cannabis cultivation in Morocco. While confirming the general extent of cannabis production in the Rif region, the 2004 Survey reveals a 10% decline in cultivation to 120,500 ha – an encouraging step in the right direction.

This year's survey builds on the work of the 2003 Survey by shedding new light on the motivations for cannabis cultivation and highlighting possible motives for change – all of which could eventually contribute to the elaboration of a national strategy to fight cannabis cultivation. The socio-economic findings presented here indicate that cannabis prices have been declining throughout the last 4–5 years. The price of resin, in particular, declined considerably between 1999 and 2004. This has put pressure on the 800,000 people involved in cannabis production, whose income has dropped 26% as compared to 2003.

Income from cannabis production remains low relative to overall GDP per capita. Unfortunately, although the disparity between incomes in the legitimate sector (US\$1,478) and incomes in the illicit sector (US\$400) is striking, there are very few alternatives to cannabis production in these isolated and service-deprived regions. In localities heavily devoted to cannabis monoculture, traditional agricultural skills and practices have been lost as a result of the over-dependence on cannabis as a livelihood strategy. This is particularly the case amongst the youth, who have experienced no other livelihood strategy and who view cannabis cultivation as the sole means to independence and prosperity. In the Rif, where population densities are three times higher than the national average, the creation of sustainable income generating opportunities will be essential to halting the expansion of the illicit sector.

Income derived from cannabis, estimated to be US\$325 million in 2004, is only 0.7% of national income. This problem, therefore, can be tackled. The impact of cannabis cultivation and its links with crime, corruption, environmental degradation are evident and are felt far beyond the borders of Morocco itself. The commitment of the international community, both in terms of technical and financial resources, will be essential in sustaining further declines in cultivation. In the coming years, the goal should be to ensure that this 0.7% of national income is generated by activities that can make solid contributions to the country's future.

The current fall in prices, combined with the decline in cultivation and the structural disparity between incomes in the licit and illicit sectors, could signal an important window of opportunity for the successful implementation of sustainable development programmes. Exploiting this window of opportunity needs to be undertaken in a spirit of multilateral partnership. The international community must commit itself to a determined partnership with the Government of Morocco in combating the problem of cannabis production in the country and its contribution to destructive illicit economies. UNODC will continue to encourage and facilitate this productive and forward-looking multilateral partnership.

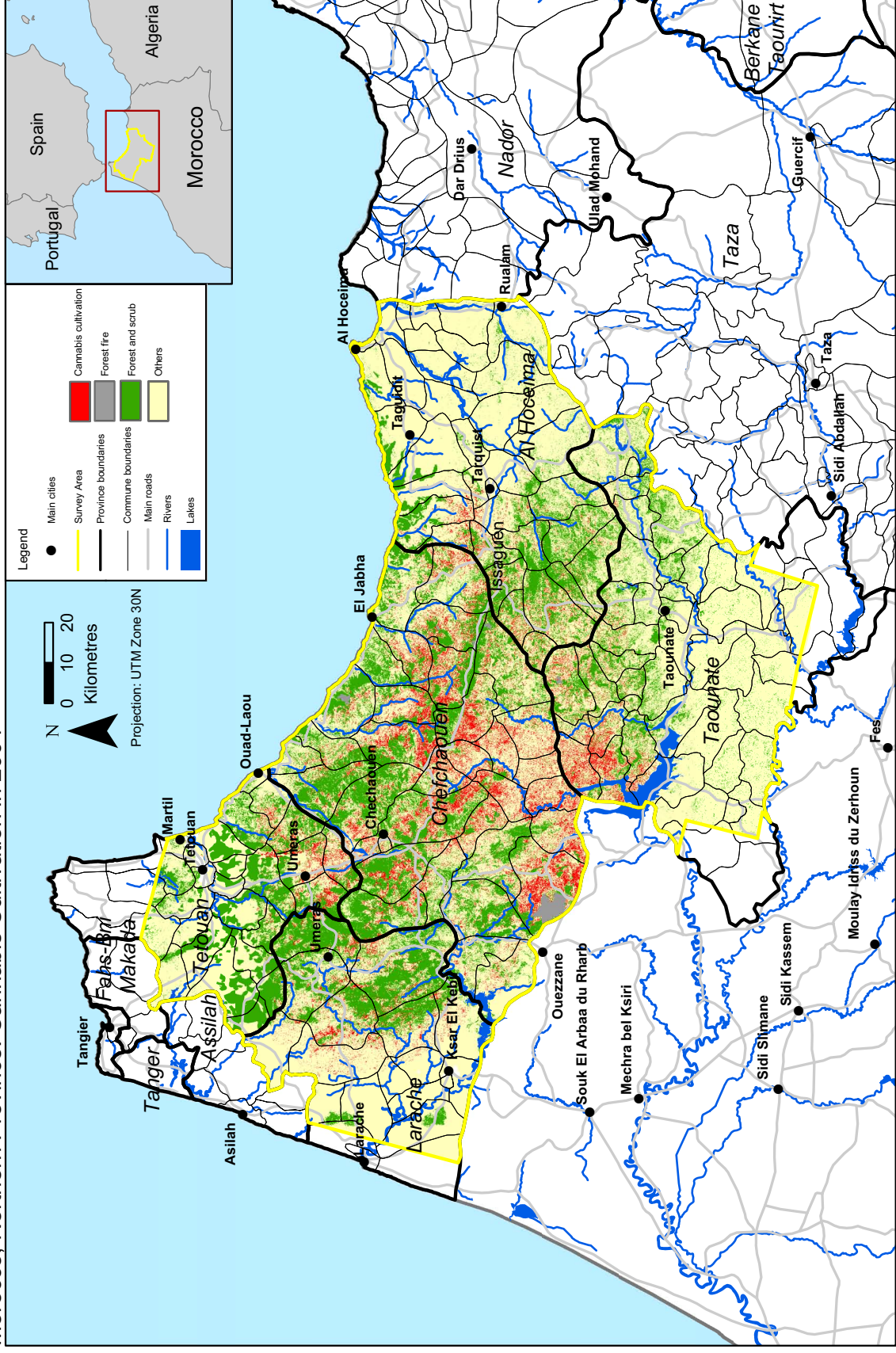


Antonio Maria Costa

Executive Director

United Nations Office on Drugs and Crime

# Morocco, Northern Province: Cannabis Cultivation in 2004



APDN (Morocco) - UNODC/ICMP Cannabis Survey 2004  
 The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

## FACT SHEET

	2003	Change	2004
Cannabis cultivation:	<b>134,000 ha</b>	-10%	<b>120,500 ha</b>
of which on rain fed land	88%		88%
of which on irrigated land	12%		12%
Number of households cultivating cannabis :	96,600 families		n/a
Total population involved in cannabis cultivation (based on an average of 8 persons per family)	804,000		n/a
Cannabis yield			
on rain fed land	750* kg/ha		750 kg/ha
on irrigated land	1,270* kg/ha		1,270 kg/ha
Gross cannabis production:	<b>109,000* tons</b>	-10%	<b>98,000 tons</b>
Cannabis extraction rate	2.82*%		2.82%
Potential production of cannabis resin	<b>3,070* tons</b>	-10%	<b>2,760 tons</b>
Average THC content :			
dried cannabis plants	n/a		2.3%
cannabis resin	n/a		8.3%
Distribution of farm gate sales:			
sale of raw cannabis	66%		66%
sale of cannabis resin	34%		34%
Cannabis sale prices :			
raw cannabis	35 dh/kg		25 dh/kg
cannabis resin	1,400* dh/kg		1,400 dh/kg
Total farmers income from cannabis:	Dh4.0 billion* (US\$ 417 million, €362 million)	-26%	Dh2.9 billion (US\$ 325 million, €263 million)
Average annual household income from cannabis:	Dh41,000* (US\$ 4,300, €3,750)		Dh30,000 (US\$ 3,300, €2,700) (based on 2003 estimate of 96,600 families)
Average cannabis income per capita:	Dh4,900 US\$ 520 €450 (2003 GDP per capita US\$ 1,478)		Dh3,600 US\$ 400 €330 (2003 GDP per capita US\$ 1,478)
Seizure of cannabis resin in Morocco:	96* tons		n/a
Seizure of cannabis resin in Western and Central Europe :	946* tons		n/a
of which of Moroccan origin (80%)	757* tons		n/a
Annual turn-over of international trade in cannabis resin:	US\$ 15* billion €12.4* billion	- 14%	US\$ 13 billion €10.8 billion (based on 2003 seizures estimates)

\* 2003 results updated based on more recent or more precise information and data obtained during the 2004 survey.

## EXECUTIVE SUMMARY

Morocco remains one of the main producers of cannabis resin (hashish) in the world. It supplies primarily the European market. The Northern Region of Morocco, where most of the cannabis cultivation is concentrated, is spread over 5 provinces and covers an area of roughly 20,000 square km.

In 2003, the first cannabis survey conducted jointly by the Moroccan Government and UNODC provided an initial estimate of the extent of cannabis cultivation in Morocco. This report presents the findings of the second survey conducted in 2004 and assesses the trend in cannabis cultivation. The information on cannabis production gained during this second survey lead to the revision of the 2003 cannabis yield, sale prices and annual income estimates.

In 2004, an in-depth sociological survey shed new light on the motivations for cannabis cultivation and possible factors for change. These results should improve the knowledge of social and economic factors influencing localities where cannabis is produced and contribute to the elaboration of a national strategy to fight cannabis cultivation.

It is worth noting that the estimate of the total farmers income from cannabis presented in this report combines the uncertainties of each of the following steps of the survey:

- the results of area estimates are being contested by Moroccan experts. These results should be re-assessed in 2005 with a method accepted by both parties;
- raw cannabis yield (kg/ha);
- distribution of raw cannabis and cannabis resin sales at the farm gate level;
- extraction rate of resin from raw cannabis;
- sale price of raw and cannabis resin.

The current estimate of the total farmers income from cannabis cultivation should therefore be considered with caution while the Moroccan Government and UNODC improve future surveys.

### Findings

#### Cannabis cultivation

The analysis of the 2004 SPOT images, which fully covered the survey area, estimated cannabis cultivation at about 120,500 hectares, or a decrease of 10% compared to 2003. The most important decreases took place in the provinces of Al Hoceima (-54%) and Taounate (-43%) while a smaller decrease was noted in the province of Larache (- 1%). These decreases are attributed to outreach activities by the local administration. Cannabis cultivation increased significantly in the provinces of Tetouan (+19%) and Chefchaouen (+13%).

62% of cannabis cultivation is concentrated in the province of Chefchaouen. The remaining is distributed among the provinces of Taounate (12%), Larach (10%), Al Hoceima (9%), Tetouan (7%).

The use of satellite imagery for the interpretation of cannabis cultivation is under development and the Moroccan government and UNODC continue to collaborate on its improvement.



### Production of raw cannabis and cannabis resin

Based on a raw cannabis yield of 1,270 kg/ha on irrigated land and 750 kg/ha yield on rain-fed land, the total potential production of raw cannabis was estimated at 98,000 tons. Its conversion into cannabis resin (hashish) was estimated at about 2,760 tons, or a decrease of about 10% compared to a revised 2003 potential production of cannabis resin of 3,070 tons.

### THC content

The average THC content of dried cannabis plants is 2.3%, and the average THC content of cannabis powder or cannabis resin is 8.3%.

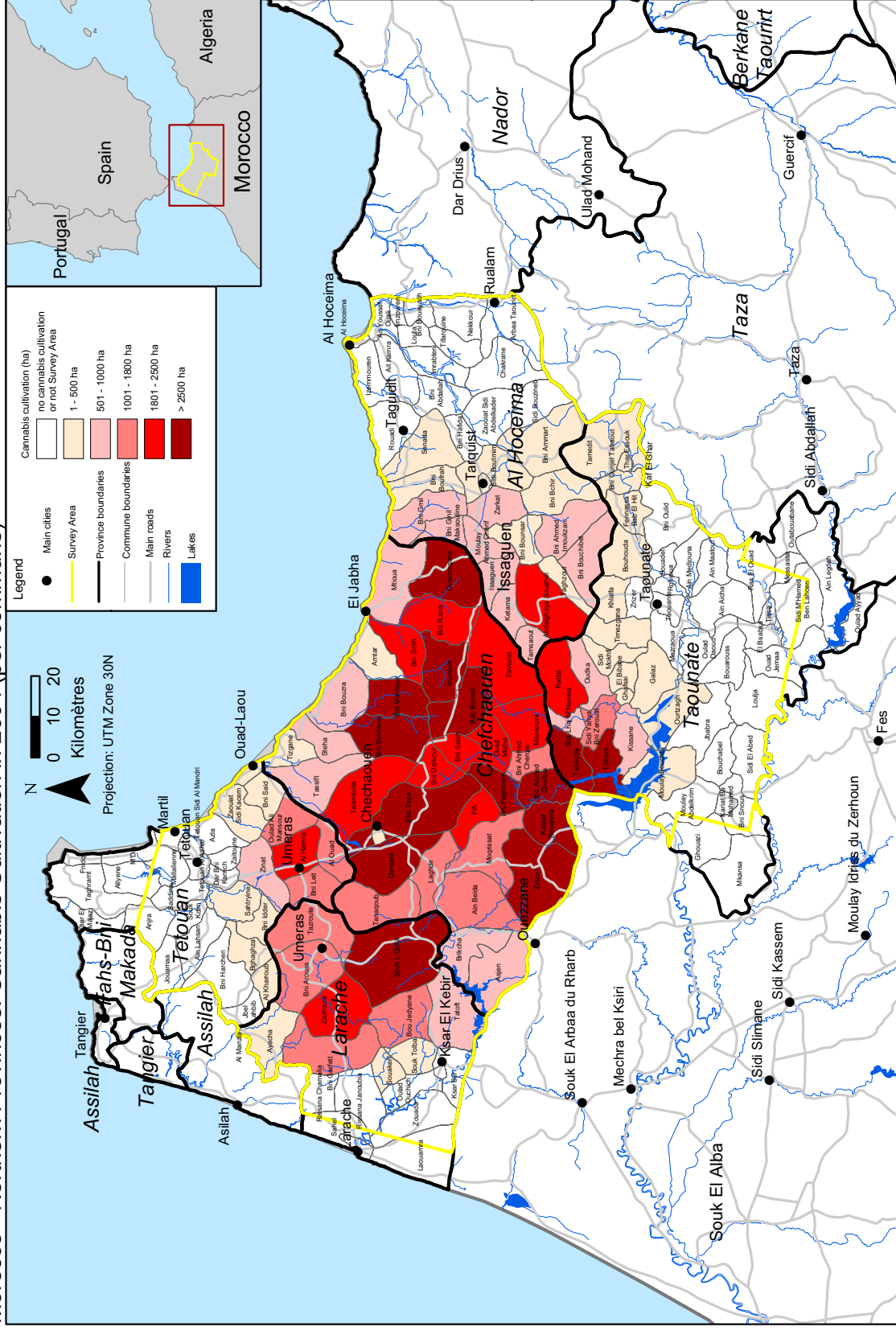
### Total gross farmers income from cannabis cultivation

The calculation of raw cannabis is based on the estimates of production, the extraction rate of cannabis resin from raw cannabis and the distribution of the sales between raw cannabis and cannabis resin. Using these estimates as a basis, the total gross farmers income from cannabis cultivation is estimated at about 3 billion Dh (US\$325 million). This represents 0.7% of GDP in 2003 (Dh242.6 billion or US\$47 billion). Based on an estimate of 96,600 households (804,000 persons) benefiting from cannabis cultivation in the Rif region (2003 estimates), this represents a gross per capita income of 3,600 Dh (US\$400), well below the country's overall 2003 GDP per capita of 14,106 Dh (US\$ 1478).

### Trafficking and overall turnover of the market for cannabis resin (hashish) of Moroccan origin

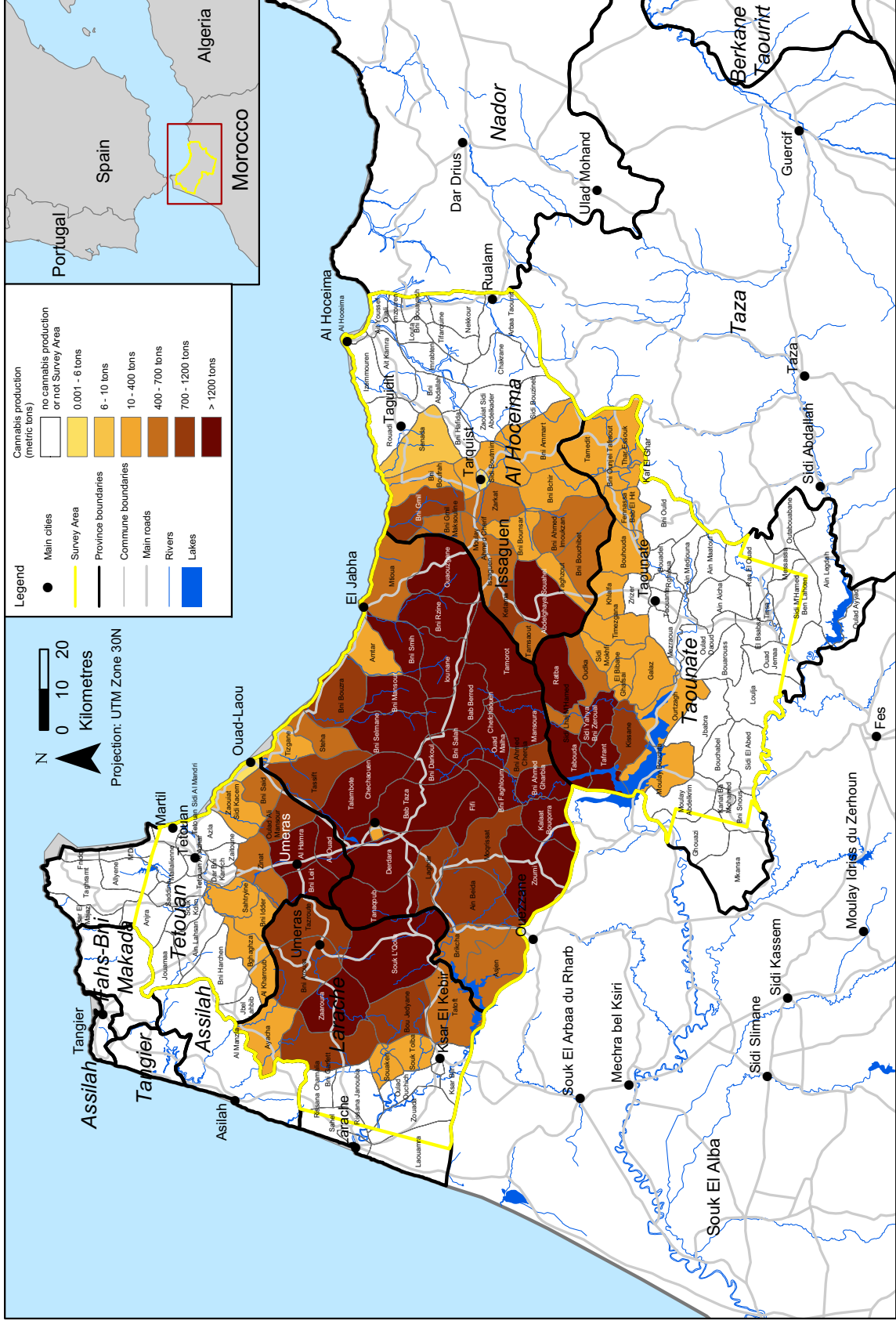
Assuming that, as in 2003, 853 tons of cannabis resin were seized in 2004 (of which 96 tons in Morocco), about 1,927 tons of cannabis resin have remained available for consumption in 2004. With an average street price for cannabis resin of 6.9\$ per gram in Western Europe, the overall turnover of the market of cannabis resin of Moroccan origin would have been US\$ 13 billion, or €10.8 billion in 2004.

# Morocco - Northern Provinces: Cannabis Cultivation in 2004 (per commune)



APDN (Morocco) - UNODC/ICMP Cannabis Survey 2004  
 The boundaries and names shown on this map do not imply official endorsement or acceptance by the United Nations.

# Morocco - Northern Provinces: Cannabis Production in 2004 (per commune)



APDN ( Morocco ) - UNODC/ICMP Cannabis Survey 2004  
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Morocco - Northern Provinces: Spot 5 and IKONOS images acquired in 2004

